Low Cost Acquisition System for a Serial Bus

The availability of a small (only 6,2x3,3x1,6 cm as we can see in figure 1), low cost and with RS232 communication acquisition system, undoubtedly is a very useful tool in certain situations. This system is designed in a way that allows the use of two different temperature sensors commonly used as LM35 and LM335 by simply adding two resistances. However, it is possible to replace the temperature sensor with any other sensor with voltage output.

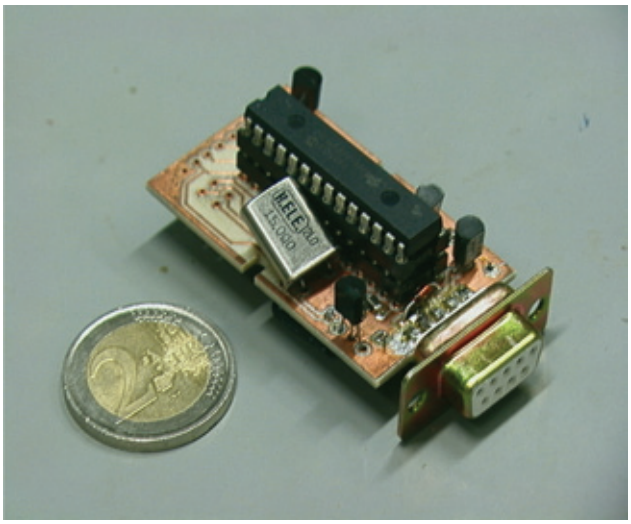

Fig. 1. The acquisition system picture

Another aspect to take into account is that because of the small size of the casing, the sensor has to be small too (if the sensor has to be introduced inside a casing), and the sensor needs to be of low consumption to be able to draw power from the current available in the RS232 bus (about 6mA). In any case this system integrates a connector which receives power from an external source and also two analog ports and six digital ports.

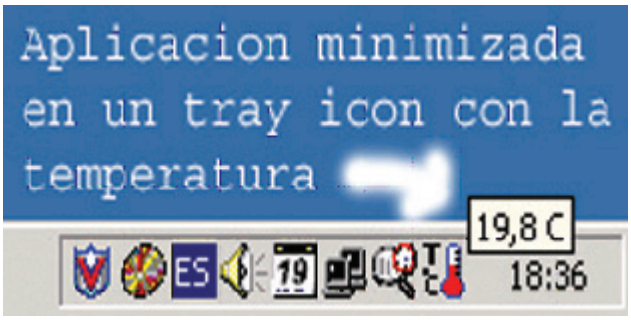

Fig. 2. Minimized application in a tray icon

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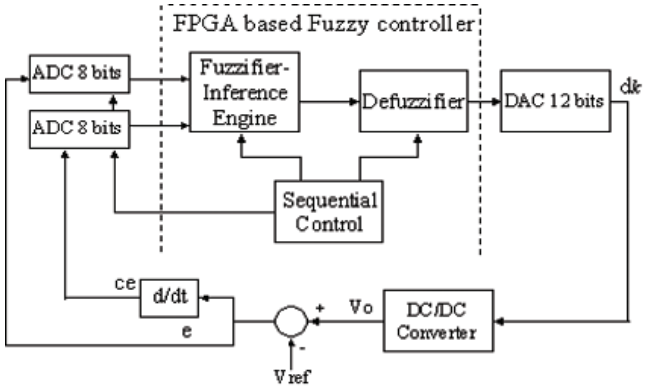
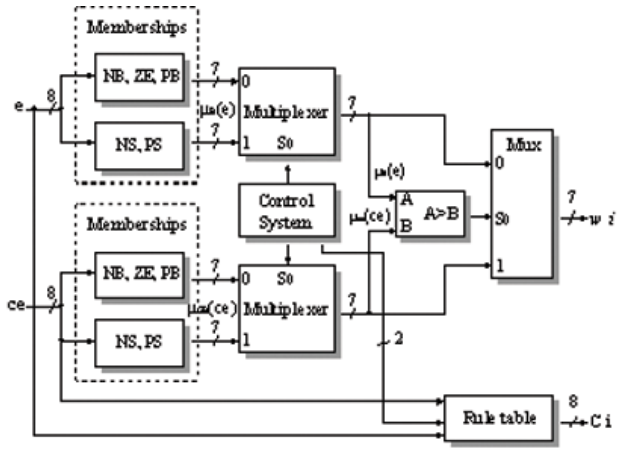
Implemntation of a Fuzzy Logic Controller for DC/DC Converters Using Field Programmable Gate Array (FPGA)

The implementation of a FPGA (Field Programmable Gate Array) based fuzzy controller for dc/dc converters is described in this paper, using the method of Boolean equations proposed in A. Mahmoud (1995). The fuzzy control developed is evaluated with experimental measurements of the closed-loop performance of a Buck dc/dc converter in respect of the line and load regulation.



Block diagram of fuzzy control scheme of DC/DC converter.

Fuzzy controllers have found applications in many diverse fields, because they have proven to be a good tool for real time industrial processes, where it is difficult to obtain a mathematical model for the system. But Fuzzy controllers have a drawback in high speed processing applications, solutions using microcontrollers of general purpose and DSP present a slow speed of processing because the fuzzy control is implemented by a software program. An alternative solution is the use of fuzzy controls like FP-3000 of Omrom or NLX 230 of Neuralogix (1M Fuzzy Logic Inferences Per Second) but they are limited by the number of rules. Another solution, presented here, is the implementation of the fuzzy control by FPGA, this solution has certain advantages: FPGA's are low cost devices, the development system works on personal computers and it presents high processing speed.



Fuzzifier-Inference engine block diagram

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